

APPENDIX 10

Louisville Metro Existing Plans, Studies, Reports, and Technical Information Summary

Code Summary

The following chart shows the relationship between the local development regulations and the Louisville Metro identified hazards.

Code Summary: Existing Authorities & Codes in Louisville Metro	Dam Failure	Drought	Earthquake	Extreme Heat	Hail	Flood	Karst/Sinkhole	Landslide	Severe Storm	Severe Winter Storm	Tornado	Wildfire
	<i>"Y" means that the regulation addresses at least partially the identified hazard</i> <i>"Y^P" means that the regulation is the primary one for that hazard</i> <i>"N" means that the regulation does not currently address the hazard</i>											
Building Code	N	N	Y ^P	Y	Y ^P	Y	Y	Y	Y ^P	Y ^P	Y ^P	N
Residential Code	N	N	Y ^P	Y	Y ^P	Y	Y	Y	Y ^P	Y ^P	Y ^P	N
Floodplain Ordinance	Y	N	N	N	N	Y ^P	N	N	N	N	N	N
Cornerstone 2020	N	N	N	N	N	Y	Y	Y	N	N	Y	Y
Land Development Code	N	N	N	N	N	Y	Y ^P	Y ^P	N	N	Y	Y ^P
Subdivision Regs	N	N	N	N	N	Y	Y	Y	N	N	N	N

On the following pages are a complete analysis/summary of land use and building codes for Louisville Metro.

Cornerstone 2020

Comprehensive Plan

Cornerstone 2020 is the official title of Louisville Metro's Comprehensive Plan that was adopted on June 15, 2000 by the Louisville and Jefferson County (now Louisville Metro) Planning Commission. The effective date of the plan was June 16, 2000.

KRS Chapter 100 authorizes local governments to regulate the use and development of land only after the adoption of a Comprehensive Plan, which establishes the goals, and public policies that define the governmental interest in such regulations. KRS 100 provides for a method of development of the Comprehensive Plan and prescribes that the Plan should be based on research and analysis of the community including:

1. The general distribution of past and present population and a forecast of the extent and character of future population;
2. An economic survey and analysis of the major existing public and private business activities and a forecast of future economic levels, and;
3. The nature, extent, adequacy and the needs of the community for the existing land and building use, transportation, and community facilities in terms of their general location, character and extent.

In addition to the required research component, KRS100 requires the Comprehensive Plan to include a Statement of Goals and Objectives and at least three Plan Elements, a Community Facilities Plan Element, a Transportation Element and a Land Use Element. After the completion of the research and analytical work, the Planning Commission during 1996 drafted and submitted to Jefferson County and the cities within the County with zoning authority (including Louisville) a Statement of Goals and Objectives for the new Comprehensive Plan. The legislative bodies studied and adopted the Goals and Objectives during 1997. The Planning Commission on February 19, 1998 then adopted them.

The final phase of the adoption of the new Comprehensive Plan was the publication and adoption of the Plan Elements. These were developed and drafted to implement the Goals and Objectives and were the product of an extensive public review process. The draft document was the subject of a public hearing on September 30, 1999. The Planning Commission accepted the revised version of the Plan elements and forwarded it to the legislative bodies for review and adoption. All 13 legislative bodies with zoning powers adopted the Plan Elements, which were officially adopted by the Planning Commission on June 15, 2000.

Besides the three statutorily required Plan Elements, namely Community Form/Land Use (Guidelines 1-5), Mobility/Transportation (Guidelines 7-9) and

Community Facilities (Guidelines 14 and 15). The Comprehensive Plan contains two additional Plan Elements, Marketplace (Guideline 6 and Livability/Environment (Guidelines 10-13). The 15 guidelines are to be used for the assessment of proposed amendments to the Zoning District Map, Land Development Code text and the Community Form Core Graphics. They are regarded as fundamental planning statements and are intended to be read and applied in an interrelated manner and in conjunction with the Goals and Objectives to determine whether a proposed land use change is in agreement with the Comprehensive Plan.

Following is a summary of the Goals and Objectives, which impact hazard mitigation:

Goal B1 Flood Control and Stormwater Management

Understand and successfully manage the impacts of development on the carrying capacity of the region's river/stream corridor system.

Objectives:

B1.1 Utilize a basin-wide approach to define primary stream corridors and their watersheds to guide future land use and infrastructure development decisions.

B1.2 Support appropriate multi-purpose use of stream corridors and drainage facilities as a component of flood control, stormwater management, and water quality protection strategies.

B1.3 Develop and implement standards for stormwater drainage facilities that emphasize the preservation of natural drainage features and ensure designs capable of accommodating the runoff from development upstream, assuming full urban build-out of the watershed. Standards shall be developed for both urbanized and rural/nonurban streams.

B1.4 Develop and implement countywide stormwater drainage control measures for new development that minimizes off-site flooding, stream bank degradation, and erosion.

B1.5 Define critical facilities and restrict their siting, as well as those facilities which store or utilize hazardous waste or materials, to locations outside the floodplain.

B1.6 Ensure that appropriate access to all development is provided during flood events.

B1.7 Prevent localized flooding caused by filling, plugging, clogging or other activities that would interfere with or reduce the natural drainage capability of a drainage way or blue line or intermittent stream.

B1.8 Encourage site design that reduces impervious surface materials and maximizes the saturation capacity of the soil in order to reduce runoff and to minimize the need for downstream system improvements necessary to contain it.

Goal B4 Wetlands

Recognize wetlands as important ecological systems that can serve a beneficial function including water quality improvement, flood control, or enhancement to resident or migratory wildlife.

Objectives:

- B4.1 Inventory probable wetlands and wetland resources in Jefferson County
- B4.2 Protect functional wetlands from disturbance, degradation or infringement.
- B4.3 Support, where technically feasible and appropriate, the creation of wetlands as an alternative, sustainable way to address water quality problems.

Goal E1 Soil Erosion

Control soil erosion and the effects of sedimentation resulting from surface water runoff.

Objectives:

- E1.1 Develop guidelines and standards to address soil erosion and sedimentation that will incorporate best management practices, provide measurable standards for stormwater quantity and quality, and establish strong deterrents to violation.

Goal E2 Natural Features and Ecosystems

Minimize the impact of changing land use on natural features and ecosystems.

Objectives:

- E2.1 Utilize Site Plan Review guidelines and standards to identify the locations of and potential impacts on environmental resources, e.g. geological features, sensitive soils, steep slopes and stream corridors.
- E2.2 Promote development that is sensitive to existing topography and minimizes land disturbance and major reshaping of geologic features.
- E2.3 Encourage the protection of and restoration of degraded channels
- E2.4 Identify development techniques and solutions that would result in no or minimal disturbance to such features.

Goal E3 Karst Features

Provide standards and guidelines for the compatibility of development within areas of karst topography to prevent property damage and loss due to subsidence, to protect groundwater quality and to prevent possible associated off-site flooding.

Objective:

- E3.1 Define, identify and map karst areas within Jefferson County.

Goal E4 Steep Slopes and Sensitive Soils

Protect steep slopes and sensitive soils.

Objectives:

- E4.1 Define, identify and map steep slopes and sensitive soils within Jefferson County
- E4.2 Develop guidelines and standards that define and set criteria for development on hilltops and steep slopes to protect water quality and prevent siltation of drainage channels.

Goal F3 Open Space

Encourage environmentally sensitive management practices for open spaces, parks, rights-of-way and floodplains.

Objectives:

F3.1 Inventory the natural resource characteristics and attributes of parks, open spaces, floodplains and rights-of-way in Louisville and Jefferson County.

F3.2 Promote environmentally responsible design and management policies for publicly owned land.

F3.3 Promote interpretive and educational programs and facilities within the parks and open space system to foster an understanding of natural resources and processes.

Goal H4 Public Health and Safety

Incorporate land needed to protect public health and safety into the open space network.

Objectives:

H4.1 Manage floodplain areas and areas needed for stormwater management to minimize water and flood damage and to preserve open space. (see Goal B1)

H4.2 Protect steep slope areas to minimize property damage and public costs resulting from inappropriate development.

Goal I1 Community Acceptance (Greenways/Stream Corridors)

Promote long-term citizen involvement in the planning, design, implementation and management of the multi-objective stream corridor/greenway system.

Objective:

I1.1 Develop and implement strategies for public participation in the development and management of multi-objective stream corridor/greenway system in Jefferson County.

Goal I5 Liability, Safety and Security

Ensure that implementation of the multi-objective stream corridor/greenway system does not endanger or degrade public health, safety and welfare.

Objective:

I5.1 Provide a safe, secure environment for all persons using multi-objective stream corridor and greenway lands.

Goal K3 Ohio River Corridor

Recognize the Ohio River Corridor as a place where people connect to nature, in a healthy environment which sustains human needs and conserves natural resources.

Objectives:

K3.1 Identify and preserve and encourage restoration of important natural resources within the River Corridor such as wetlands, steep slopes and significant habitat.

K3.2 Manage the floodway and 100-year floodplain of the River to protect the public health, safety and welfare and to preserve open space.

Goal L1 Natural Resource Protection (Jefferson County Memorial Forest)

Protect the unique natural communities and preserve the biological diversity within the woodlands, meadows, streams and ponds of the Jefferson County Memorial Forest.

Objectives:

L1.1 Prohibit practices that fragment the forest including logging, timber stand improvement, road construction, creating new wildlife openings, excessive trail construction, cutting trees for visual purposes, etc.

L1.2 Prohibit activities incompatible with Forest restoration including grazing, off-road vehicle use, and mountain biking in non-designated areas.

L1.3 Contain high-impact recreational activities within designated areas.

L1.4 Allow low-impact recreational uses such as hiking and nature study throughout the Forest.

L1.5 Limit all access to the Forest to the minimum needed for stewardship and designated recreation.

L1.6 Limit trails to a single loop with occasional side trails to access scenic vistas or interesting non-sensitive features. All trails should be routed along topographic contours to minimize erosion and reduce cut and fill. Avoid steep slopes, erodible soils, streambeds and populations of rare or sensitive plants or animals. Design trails with input from a naturalist and a landscape architect, consistent with Trail Design, Construction and Maintenance as used by the Appalachian Trail Conference.

L1.7 Reroute trails and restore eroded areas by planting native trees, understory shrubs, and wildflowers characteristic of the forest community. Discourage new or "renegade" trails.

L1.11 Locate and correct areas of soil erosion to protect water quality.

L1.12 Develop and implement a fire management plan appropriate for specific areas including wilderness and developed areas.

Plan Elements

Guideline 5. Natural Areas and Scenic and Historic Resources

Protect natural areas, natural features and important scenic and historic resources. Locate development, whenever possible, in areas that do not have severe environmental limitations.

Intent: To guide future public and private economic development, investment, and preservation within areas identified as an important resource by the community.

Policies:

1. Natural Features. Encourage development that respects the natural features of the site through sensitive site design, avoids substantial changes to the topography and minimizes property damage and environmental degradation resulting from disturbance of natural systems.

6. Soils and Slopes. Encourage development to avoid wet or highly permeable soils, severe, steep or unstable slopes where the potential for severe erosion problems exists in order to prevent property damage and public costs associated

with soil slippage and foundation failure and to minimize environmental degradation.

Guideline 10. Flooding and Stormwater

Minimize the potential for and impacts of flooding and effectively manage stormwater.

Intent: To protect the conveyance zone and maintain the hydraulic capacity of natural drainage systems and ensure that drainage designs minimize damage to streams and property from flooding and stormwater runoff.

Policies:

1. Impact to Watershed. Mitigate negative development impacts to the watershed and its capacity to transport stormwater, discouraging changes to stream channels and natural drainage features. Use, where available, MSD watershed plans as a guideline for development suitability.
2. Impact to Regulatory Floodplain. Mitigate negative development impacts to the integrity of the regulatory floodplain, encouraging patterns that minimize disturbance.
3. Impervious Surface. Minimize impervious surface area and take advantage of soil saturation capacities.
4. Floodplain Management Standards. Base floodplain management standards on a regulatory floodplain that reflects the full development potential of each watershed.
5. Blueline Streams. Protect solid blueline streams, consistent with the current floodplain management ordinance, from channelization, stripping, relocation or other alteration. Ensure a vegetative buffer for the banks of blueline streams to protect the functional integrity of the channel.
6. Compensatory Storage. Ensure that provisions are met (consistent with the current floodplain management ordinance) for compensatory storage when proposals reduce the existing storage capacity of the floodplain.
7. Accommodation of Stormwater Runoff. Ensure drainage designs capable of accommodating the runoff from development upstream, assuming a fully developed watershed.
8. Critical Facilities. Ensure, to the extent feasible, that critical facilities and those that store or use hazardous wastes are located outside the regulatory floodplain. Where essential community facilities must be located within a floodplain (e.g. pumping stations), ensure that these facilities are designed, located and operated in a manner that minimizes loss of services during flood events and limits, to the extent possible, floodplain disturbance.
9. Vehicular Access. Ensure that sufficient emergency vehicle access is provided above flood levels or that other remedial measures have been proposed to minimize potential hazards for any development that is proposed in or through the regulatory floodplain.
10. "Through" Drainage. Require that "through" drainage systems accommodate runoff based on a fully developed watershed and are calculated in a manner that is acceptable to MSD. Encourage, where feasible, that such systems take advantage of natural drainage feature.

11. Stormwater Runoff. Ensure that peak stormwater runoff rates or volumes after development are consistent with regional and watershed plans or are mitigated on-site. Mitigation measures shall be implemented in a manner that is acceptable to MSD.
12. Stream Corridors. Utilize Best Management Practices (BMPs) to preserve or restore stream banks/corridors.

Guideline 11 Water Quality

Protect water quality.

Intent: To prevent the degradation of water quality due to water pollution and erosion.

Policies:

3. Sediment and Erosion Control. Prevent erosion and control sedimentation using standards that account for varied site conditions and construction activities.
4. Stream Corridor Protection. Use appropriate water quality best management practices (BMPs) for site preparation and construction activities to protect stream corridors from sediments and pollutants.
6. Standards for Carbonate Areas. Protect carbonate areas through standards that control the type, location, design and operation of activities posing potential threats to groundwater quality and karst features in carbonate areas.
7. Protection of Carbonate Areas. Determine site susceptibility to erosion, identify the presence of carbonate conditions and features on site and their vulnerability to site disturbance, the extent of existing groundwater use and the impacts of the project on groundwater resources, flow patterns and existing and proposed drainage. Mitigate potential hazards to such systems resulting from the project.

Core Graphic 5 – Environmental Constraints

Constraints include:

- Floodplains
- Hydric Soils
- Steep Slopes
- Unstable Soils
- Unstable Soils on Steep Slopes.

Land Development Code

The “Land Development Code For All of Jefferson County, Kentucky” (LDC) was adopted by the Louisville Metro Planning Commission, pursuant to KRS 100.137, and became effective on March 1, 2003. It provides the detailed regulations for all development in Louisville Metro in conformance with the Comprehensive Plan (Cornerstone 2020). Under the LDC, Louisville Metro is vested with zoning authority for all areas of the County except for properties located within the boundary of 2nd, 3rd and 4th Class Cities. The cities which retain zoning authority are: Anchorage, Douglass Hills, Graymoor-Devondale, Hurstbourne, Indian Hills,

Jeffersontown, Lyndon, Middletown, Prospect, Shively, St. Matthews and St. Regis Park. The Louisville Metro Planning Commission reviews and makes recommendations to the cities on rezoning issues using the LDC as a guideline. All of the cities also utilize the LDC as their guidelines, however, as of July 2004, four cities (Anchorage, Indian Hills, Prospect and St. Matthews) are still in the process of adopting the current LDC and still utilize the Development Code that was in effect prior to March 2003.

The LDC provides for government agency review of development plans utilizing the regulations and guidelines of the LDC in their review and approval. Agencies involved in the review of development plans include:

- Planning Commission staff
- MSD (drainage, floodplain management, sewers, slopes, unstable soils, karst, erosion and sediment control, hazardous materials etc.)
- Inspections, Permits and Licenses
- Public Works
- Health Department
- Fire Departments
- NRCS (soils, slopes, etc.)
- Air Pollution Control District
- Police
- Other agencies depending on type and location of development such as the Waterfront Development Corporation, U.S. Army Corps of Engineers, KIPDA, TARC, and Historic Preservation.

Following are specific sections of the LDC which relate to natural hazards.

Zoning Districts

W-1 – Waterfront District (flooding)

W-2 – Waterfront District (flooding)

W-3 – Waterfront District (flooding)

WRO – Waterfront Development Review Overlay District (flooding)

Chapter 3 Special Districts

Part 1. Floyds Fork Special District – New regulations are to be drafted but until then, the 1993 Floyds Fork Development Review Overlay District regulations are still in effect. The regulations provide special protection for the stream corridor to protect the quality of the natural environment. Sections with specific higher standards include:

- Stream Corridors
- Trees and Vegetation
- Drainage and Water Quality
- Hillsides

- Historic Elements
- Vistas and Appearance

Part 2. Jefferson Forest Special District – New regulations to be developed.

Part 3. Ohio River Corridor Special District – New regulations to be developed.

Part 4. Tyler Rural Settlement Special District – New regulations to be developed.

Appendix 3A Bardstown Road/Baxter Avenue Corridor Review Overlay District – Although the regulations do not specifically discuss hazards, historic preservation is strengthened in the district, which could affect earthquake vulnerability particularly regarding façade preservation.

Appendix 3B Downtown Overlay District – Regulations do not specifically address hazards except potentially in Section E “Waterfront View District”.

Appendix 3C Waterfront Review Overlay District – Adopted pursuant to KRS 82.660 – 82.670, the regulations require higher-level review of all development within the defined area and provide for a separate review process by the Waterfront Development Corporation, the agency responsible for development of the waterfront area. Besides flooding there is one other hazard addressed by section 162.48 Design Guidelines (7) which requires all utilities to be underground (wind, tornado).

Chapter 4 Generally Applicable Development Standards

4.1.2 Factory Built Housing requires permanent attachment to permanent foundation in accordance with KRS 227.570-227.590. (wind, tornado, flooding).

Chapter 4.2 Conditional Use Permits

4.2.21 Earth Excavation, Filling and Refuse Disposal Operations requires detailed plan review and approval by MSD and Planning Commission with strict environmental standards. (flooding)

4.2.49 Underground Space requires certification by a Professional Engineer of adequate surface support to prevent cave-in and subsidence problems.

Part 4 Accessory Uses and Miscellaneous Standards

4.4.7 Minor Earth Excavation – requires detailed plan review by MSD and Planning Commission, an Erosion Prevention and Sediment Control permit from MSD and prohibits using contaminated and/or organic fill material. (flooding)

Part 6 Development on Sites with Environmental Constraints

Provides additional standards for sites impacted by:

- Floodplain/floodway (conveyance zone)
- Waterways/wetlands
- Lakes and impoundments of one acre or greater
- Karst features
 - Steep Slopes (>20%) and/or Unstable soils

Section 4.7 Development on Steep Slopes provides specific standards of sites with slopes>20% and/or with unstable soils. Requires a site analysis by a

Professional Engineer (PE) and specific approval by MSD and the Planning Director.

4.7.6 Provides for an independent review of the plan prepared by the developer's PE, if recommended by NRCS, MSD, or the Planning Director, with the cost of the review to be paid for by the developer.

4.7.7 Allows the transfer of development activity within affected sites to areas within the site not impacted by slopes or unstable soils and allows higher density in the non-affected areas to compensate for leaving affected areas undeveloped.

Section 4.8 Waterways and Wetland Protection – regulations help reduce flooding impacts and provide environmental protection.

Section 4.9 Karst – Regulations have not yet been written for this section.

Appendix 4G Floodplain Management

Appendix 4H Erosion Prevention and Sediment Control – Ordinance No. 26 Series 2001, adopted 9/25/01. Chapter 159 of the Jefferson County Code of Ordinances sets requirements for plan review and permitting by MSD for land disturbing activities to control soil erosion and siltation. (flooding, environmental protection).

Chapter 7 Subdivision Regulations

Section 7.5 Preliminary Subdivision Plans

7.5.40 Requires identification of areas with slopes >20% and >30%, unstable soils, streams and floodplains which provides for early assessment of the impact of the development on those areas.

Section 7.6 Construction Plans for Major Subdivisions

7.6.40 Composite Drainage Plan – required to be prepared by a Professional Engineer (flooding).

7.6.50 Plan View and Profile – must show all drainage structures, environmentally constrained areas such as steep slopes, unstable soils, wetlands, karst etc. Requires PE to design mitigation measures to be reviewed and approved by MSD, Public Works and the Planning Director.

Part 8 – Minor Subdivisions

7.8.20 Minor plat must show the location of the 100-year floodplain on the property, or a note that the property is not located within the 100-year floodplain. Plat must also show any streams on the property.

Louisville/ Jefferson County Floodplain Ordinance

Floodplain Regulations

The National Flood Insurance Program (NFIP) is a voluntary FEMA program. To join the program a community must adopt and enforce a local floodplain ordinance. Louisville and Jefferson County joined the NFIP on different dates, as did three other communities within the county boundary. In total there are five NFIP communities within Jefferson County which have been assigned Community ID's to:

- City of Jeffersontown, ID # 210121 with a Post-FIRM date of 3/5/76
- City of Louisville, ID # 210122, 7/17/78
- City of Shively, ID # 210124, 8/1/78
- City of St. Matthews, ID # 210123, 3/5/76
- Unincorporated Jefferson County, ID # 210120, 4/16/79

Note: MSD, as the Floodplain Administrator, is in the process of having Unincorporated Jefferson County and the City of Louisville merged into one Community ID number to reflect the current merged Louisville Metro.

The Post-FIRM date refers to when the community first adopted floodplain regulations and the FIRMs (Flood Insurance Rate Maps) for that community. The U. S. Corps of Engineers developed the original floodplain maps for FEMA in the early 1970's and covered only the area within each of the jurisdictions. They were prepared using different map scales and were difficult to use particularly for properties located on or near the borders of the maps. The maps were updated in 1994 by the Corps in partnership with Jefferson County, LOJIC, and MSD utilizing the then new LOJIC mapping for the county and new hydrologic and hydraulic models developed by MSD. The updated FIRM maps were the first approved by FEMA that were based on a local community's digital base maps. The maps are still in effect and cover the entire Louisville Metro area. Currently MSD is revising the FIRMs under a grant from FEMA as part of the Cooperating Technical Partners (CTP) program. The new maps will be ready for approval in 2005.

The Floodplain Ordinance for Jefferson County was originally adopted in 1978 as Article 13 of the Development Code and basically met the minimum FEMA requirements (except it included a 1' freeboard requirement). The ordinance was also adopted by the four cities affected within the County. The Water Management Division of the County Public Works Department was designated as the review and approval agency for all development in the floodplain in the County (including the four cities). A separate floodplain permit was not issued at that time. Instead, Water Management approved plans and those plans became part of the building permit issued by the County or the City. Enforcement was done by the agency issuing the building permit in cooperation with Water Management. On January 1, 1987 MSD was designated the review and approval agency as part of the new stormwater management program

implemented by MSD, the County and the City of Louisville. MSD continued enforcement using the process in place at that time.

The Floodplain Ordinance was revised in 1989 in order to meet new FEMA requirements and also to reflect MSD's new role in the enforcement process. The new ordinance exceeded the NFIP minimum criteria in several areas including the 1-foot freeboard and a requirement to base the substantial damage/improvement calculations on the cumulative cost over the life of the structure. Jefferson County and the City of Louisville joined the Community Rating System at that time and received a Class 9 Rating in 1990. Jefferson County and the City of Louisville are currently Class 6 CRS communities because of the higher regulatory standards set by the ordinance and other programs. The Class 6 Rating provides residents a 20% discount for flood insurance premiums on properties located within the 100-year floodplain.

On September 9, 1997 Jefferson County adopted Ordinance #23, Series 1997, Chapter 157 of the Jefferson County Code of Ordinances, which is the floodplain ordinance currently in effect for all of Louisville Metro. The ordinance update was the result of a community wide effort to strengthen the floodplain regulations because of the impact of past flooding events. In particular, the flood of March 1997 was fresh in the minds of the community when the ordinance was adopted. Besides strengthening the regulations in several important areas, the new ordinance created a floodplain permit process administered by MSD and a Floodplain Board (the MSD Board) to oversee the process. MSD staff now reviews all development plans in the floodplain, ensures the permittee applies for a state permit, issues a specific floodplain permit, and enforces the provisions of the ordinance. The Floodplain Board handles requests for appeals and variances. Appeals to the Floodplain Board's actions are to Jefferson County Circuit Court. Penalties for violation were also increased from the previous versions of the ordinance.

It should be noted that under the State Regulations, KAR 4:060, a separate state stream construction permit is also required for all development in the floodplain. Since the Louisville Metro ordinance is stricter than the state regulations, the local permit is enforced, but the state permit must also be obtained. MSD staff and the State Division of Water have implemented a process to speed up permit approvals.

As part of the Floodplain Management Plan program, the local task force worked with MSD staff and the Jefferson County Attorney's office to revise the 1997 ordinance to reflect the merger of the City and County and also to implement several changes intended to enhance the enforcement process. The revised ordinance is currently being reviewed by the Metro Council and should be adopted in the near future.

Another proposed major change is to separate the definition of “substantial improvement” and “substantial damage” and to treat these issues more consistently. The intent is to make improvements subject to cumulative (at least 5 year) costs but damage to be based on annual costs. To implement this change, the state regulations will also need to be revised. This process may take several years to fully implement.

The following section is an overview of key provisions of the current and proposed ordinance, which make it one of the strictest in the country:

- Fully Developed Watershed – means a condition of a watershed that most accurately reflects the ultimate land use of the watershed and its potential to cause runoff.
- Local Regulatory Floodplain – the 100-year floodplain created by using the runoff calculation from the Fully Developed Watershed.
- Local Regulatory Conveyance Zone – the area defined when the Local Regulatory Floodplain is “squeezed” to create a 1/10 of a foot rise. This is similar to the FEMA Floodway, which is based on current runoff conditions, and a 1-foot rise.
- Floodplain Compensation – any fill in the Local Regulatory Floodplain must be compensated by excavation in the floodplain to at least a ratio of 1:1.
- Blueline Streams – no relocation, channelization, or stripping is allowed except for certain specific conditions such as highway bridge construction. A natural vegetation buffer strip of 25 feet on each side must be maintained.
- Access – for any new lot created in the floodplain, no new construction can occur unless access to the lot is available from a road which is at or above the Local Regulatory Floodplain.
- Critical Facility – facilities are defined to include hospitals, nursing homes, police and fire stations, emergency operations and facilities that store hazardous or flammable materials. New critical facilities must be located outside the Local Regulatory Floodplain, or certain other conditions must be met which assure the facility will be undamaged and functional in emergencies.

For a more detailed review of the Floodplain Ordinance and Floodplain Management, refer to the Louisville / Jefferson County Floodplain Management Plan located at MSD, EMA, and the public library. The plan can also be accessed from MSD’s website at:

<http://www.msdlouky.org/programs/crssite/fpmp.html>.

Building Codes

The currently adopted building codes effective in Louisville Metro are the 2002 Kentucky Building Code and the 2002 Kentucky Residential Code. These codes were promulgated under the Kentucky Administrative Regulations (KAR), 815

KAR 7:120 and 125, under authority of Kentucky Revised Statutes (KRS), KRS 198B.060. They are essentially the same codes as the 2000 International Building Code modified to reference specific Kentucky conditions. The Kentucky Building Code was originally approved in 1978 and was adopted by the City of Louisville and Jefferson County in 1980 in accordance with State law. It was officially re-adopted by Louisville Metro on August 12, 2004 and is Section 150.001 – .003 of the Louisville Metro Code of Ordinances. The Kentucky Residential Code is a new code and was also adopted by Louisville Metro on August 12, 2004

Enforcement of the building code is the responsibility of the Louisville Metro Department of Inspections, Permits and Licenses (IPL). This department was created in 2003 by the merger of the former City of Louisville IPL and the Jefferson County Code Enforcement Department. IPL is responsible for plan review, permitting and inspections throughout Louisville Metro except for the City of Jeffersontown, which has a Building Department and issues its own permits. The City of Jeffersontown has also adopted and enforces the 2002 Kentucky Building Code and Residential Code

Following is a summary of the chapters and sections of the building code which deal with the various hazards facing the community:

2002 Kentucky Building Code

Chapter 4 – Special Detailed Requirements Based on Use and Occupancy

Section 403 High-Rise Buildings

403.10 Standby Power requirements

403.12 Seismic Considerations

Section 404 Atriums

404.4 Standby power required for smoke control

Section 405 Underground Buildings

405.9 Standby power required

405.10 Emergency power system required

Chapter 6 – Types of Construction

Section 603 Combustible Materials

Chapter 7 – Fire Resistance Rated Construction

Chapter 9 – Fire Protection Systems

Chapter 10 – Means of Egress

1003.2.11.2 Illumination emergency power required

1003.2.1.13.5 Areas of Refuge

1003.2.13.5.3 Two way communication for areas of refuge

1003.2.13.7 Exterior area for assisted rescue

1003.3.1.3.2 Power operated doors – manual operation

1003.3.1.3.3 Horizontal sliding doors – manual operation

1003.3.1.3.4 Access-controlled egress doors – manual operation

1003.3.1.9 Panic and fire-exit hardware

1003.3.3.12 Stairway to roof

Section 1004 Exit Access – number, location, travel distance and types
Section 1005 Exits – Design criteria
Section 1008 Assembly – exit requirements for assembly areas
Section 1009 Emergency Escapes and Rescue

Chapter 14 – Exterior Walls

1403.2 Weather protection
1403.4 Structural requirements
1403.6 Flood resistance – for walls in floodplain
1405.2 Weather protection specifications
Section 1406 Combustible Materials on Exterior
Section 1407 Aluminum Composite Materials
1407.6 Weather Resistance
1407.8 Fire Resistance

Chapter 15 – Roof Assemblies and Rooftop Structures

Section 1503 Weather Protection
Section 1504 Performance Requirements
1504.3 Wind Resistance
Section 1505 Fire Classification
1507.2.7 Attachment of asphalt shingles based on wind speed
1507.2.8.1 High wind attachment of underlayment
1507.2.8.2 Ice dam protection for underlayment
Table 1507.3.7 Clay and Concrete Tile Attachment

Chapter 16 – Structural Design (*Note- this is the key section for hazards*)

Section 1603 – Construction Documents – requires design loads to be shown on the plans.
1603.1.2 Roof live loads
1603.1.3 Roof snow load
1603.1.4 Wind loads
1603.1.5 Earthquake Design Data
1603.1.6 Flood loads
1603.1.7 Special loads
Section 1604.8 Anchorage – of roof to walls and columns
Table 1604.5 “Classification of Buildings and Other Structures for Importance Factors” includes seismic, snow and wind factors.
Section 1605 Load Combinations
1605.4 Special Seismic Load Combinations
Section 1607.11 Roof Loads (wind, snow and earthquake)
Section 1608 Snow Loads
Table 1608.2 “Design Snow and Seismic Loads for Kentucky Counties”
(Note for Jefferson County, Ground Snow Load is 15 psf, and Seismic Design Category = B)
Table 1608.3.1 “Snow Exposure Factor...”
Section 1609 Wind Loads
Table 1609.6.2 “Main Windforce Resisting System Loads”
Section 1611 Rain Loads (for roofs)

Section 1612 Flood Loads – applies to all structures in the floodplain, including substantial improvement and damage.

Table 1609.6.2.1(2) Component and Cladding Wind Loads

Table 1609.6.2.1(3) Roof Overhang Component Wind Loads

Table 1609.6.2.1(4) Height and Exposure Adjustment for Wind Loads

Figure 1609.6(1) Main Windforce Loading Diagram

Figure 1609.6(2) Component and Cladding Loading Diagram (wind)

Figure 1609.6(3) Application of Main Windforce Resisting System Loads

Section 1613 Earthquake Loads Definitions

Section 1614 Earthquake Loads General

Section 1615 Earthquake Loads Site Ground Motion

Table 1615.1.1 Site Class Definitions – related to soil type

Table 1615.1.2(1) Values of Site Coefficient as Function of Site Class and Mapped Spectral Response Acceleration S_s ($S_s = .27$ in Lou. Metro)

Table 1615.1.2(2) Values of Site Coefficient as a Function of Site Class and Mapped Spectral Response S_1 ($S_1 = .13$ in Lou. Metro)

Section 1616 Earthquake Loads – Criteria Selection

1616.2 Seismic Use Groups and Occupancy Importance Factors
(Groups I, II and III – hazard increases as Group increases)

Section 1617 Earthquake Loads – Minimum Design

Table 1617.6 “Design Coefficients and Factors for Basic Seismic Force Resisting Systems”

Section 1618 Dynamic Analysis Procedure

Section 1619 Earthquake Loads – Soil/Structure Interaction Loads

Section 1620 Earthquake Loads – Design, detailing requirements and Structural Component Load Effects

Section 1621 Architectural, Mechanical and Electrical Component Seismic Design Requirements

Table 1621.2 Architectural Component Coefficients

Table 1621.3 Mechanical and Electrical Components Coefficients

Section 1622 Non-building Structures Seismic Design Requirements
(Elevated tanks, towers, signs, etc.)

Table 1622.2.5(1) Seismic Coefficients for Non-building Structures

Section 1623 Seismically Isolated Structures

Section 1624 Ice Loads

Chapter 17 – Testing and Quality Assurance

Section 1705 Quality Assurance for Seismic Resistance

Section 1706 Quality Assurance for Wind Requirements

Section 1707 Special Inspections for Seismic Resistance

Section 1708 Special Testing for Seismic Resistance

Section 1709 Structural Observation – must be provided for Seismic Design Categories D, E or F under certain conditions.

Chapter 18 – Soils and Foundations

Section 1801.2.1 Foundation Design for Seismic Overturning

Section 1802 Foundation and Soils Investigations

1802.2 Where Required:

- 1802.2.1 Questionable Soils
- 1802.2 Expansive Soils
- 1802.3 Groundwater Table
- 1802.6 Seismic Design Category C
- 1802.7 Seismic Design Category D, E or F
- Section 1805 Footings and Foundations
 - 1805.2.1 Frost Penetration
 - 1805.2.3 Shifting or Moving Soils
- Table 1805.2.1 Minimum Frost Depth (24" for Lou. Metro)
- Section 1806 Dampproofing and Water Proofing
- Section 1807 Pier and Pile Foundations
 - 1807.2.23 Seismic Design of piers or piles
- Section 1808 Driven Pile Foundations
 - 1808.2.2 Precast, non-prestressed piles
 - 1808.2.2.2.1 Seismic Reinforcement Seismic Des. Cat. C
 - 1808.2.2.2.2 Seismic Reinforcement Seismic Des. Cat D, E or F
 - 1808.2.3 Precast Prestressed Piles
 - 1808.2.3.2.1 Seismic Design Category C
 - 1808.2.3.2.2 Seismic Design Category D, E or F
 - 1808.3 Structural Steel Piles
 - 1808.3.5 Design in Seismic Design Category D, E or F
- Section 1809 Cast-in-place Concrete Pile Foundations
 - 1809.2.1 Reinforcement in Seismic Des. Cat. C
 - 1809.2.2 Reinforcement in Seismic Des. Cat. D, E or F
 - 1809.5 Steel Cased Piles
 - 1809.5.4.1 Seismic Reinforcement in Seis. Des. Cat. C, D, E or F
 - 1809.6 Concrete Filled Steel Pipe and Tube Piles
 - 1809.6.4.1 Seismic Reinforcement in Seis. Des. Cat. C, D, E or F
- Section 1810 Composite Piles
 - 1810.5 Seismic Reinforcement in Seis. Des. Cat. C, D, E or F

Chapter 19 – Concrete

- 1904.2 Freezing and thawing exposures
 - Table 1904.2.1 Total Air Content for Frost-resistant Concrete
 - Table 1904.2.2(1) Requirements for Special Exposure – Freezing and thawing etc.
- Section 1910 Seismic Design Provisions
 - 1910.3 Seismic Design Category B
 - 1910.4 Seismic Design Category C
 - 1910.5 Seismic Design Category D, E or F

Chapter 21 – Masonry

- Section 2106 Seismic Design
 - 2106.3 Seismic Design Category B
 - 2106.4 Seismic Design Category C
 - 2106.5 Seismic Design Category D
 - 2106.6 Seismic Design Category E or F
- Section 2108.9.3 Design of Beams, Piers and Columns

2108.9.3.7 Seismic Design Provisions
Section 2111 Masonry Fireplaces
2111.4 Seismic Anchorage (Seismic Design Category D)
Section 2112 Masonry Heaters
2112.3 Seismic Reinforcement
Section 2113 Masonry Chimneys
2113.3 Seismic Reinforcement

Chapter 22 – Steel

Section 2211 Wind and Seismic Requirements for Light-framed, cold-formed Steel Walls
2211.7 Seismic Design Category D, E or F
Section 2212 Seismic Requirements for Structural Steel Construction
2212.1.1 Seismic Design Category A, B or C
2212.1.2 Seismic Design Category D, E or F
Section 2213 Seismic Requirements for Composite Construction
2213.1 Seismic Design Category B
2213.2 Seismic Design Category D, E or F

Chapter 23 – Wood

Section 2305 General Design Requirements – for walls to resist wind, seismic and other lateral loads
2305.2.4.1 Seismic Design Category F
Section 2306.2 Wind Provisions for Walls
Section 2308 Conventional Light Frame Construction
2308.2.1 Basic Wind Speed Greater than 100 mph
2308.2.2 Buildings in Seismic Design Category B, C, D or E
Table 2308.9.3(4) Allowable Shear Values for Wind or Seismic Loading...
Table 2308.9.5 Header and Girder Spans for Ext. Walls (snow load)
Table 2308.10.1 Required Rating for Approved Uplift Connections (wind)
Table 2308.10.3(6) Rafter Spacing for Common Lumber Species (snow)
Table 2308.10.4.1 Rafter Tie Connections (snow load)
2308.11 Construction in Seismic Design Category B or C
2308.12 Construction in Seismic Design Category D or E
Table 2308.12.4 Wall Bracing in Seismic Design Category D or E

Chapter 24 – Glass

Section 2404 Wind, Snow and Dead Loads on Glass
Section 2406 Safety Glazing

Chapter 27 – Electrical

Section 2702 Emergency and Standby Power Systems

Chapter 30 – Elevators and Conveyance Systems

Section 3003 Emergency Operations
3003.1 Standby Power
3003.2 Fire-fighters Emergency Operation

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4. Part III – Building Planning and Construction

5. Chapter 3 – Building Planning

R301.2.1 Wind Limitations

R301.2.1.4 Exposure (Wind) Category

R301.2.2 Seismic Provisions

R301.2.3 Snow Loads

R301.2.4 Floodplain Construction

Table R301.2(1) Ground Snow Load, Wind Speed, Seismic Design Category, Frost Depth, Winter Design Temperature and Flood Hazard – to be filled out for each home.

Table R301.2(2) Component and Cladding Loads – Wind speed

Figure R301.2(1) Winter Design Temperature – (Louisville = 10°)

Figure R301.2(2) Design Snow and Seismic Loads for KY Counties

(Jefferson County Snow Load = 15 psf, Seismic Design Cat. B)

Figure R301.2(3) Weathering Probability Map for Concrete (Kentucky is rated “Severe”)

Figure R301.2(4) Wind Speeds (Kentucky is in area with Basic Wind Speed = 70 mph)

Figure R301-2(5) Ground Snow Loads for the U.S. (Jefferson County = 15 psf)

Figure R301.2(8) Component and Cladding Pressure Zones

6. Section R310 – Emergency Escape and Rescue Openings

Section R317 – Smoke Alarms

Section R319 – Flame Spread and Smoke Density

Section R327 – Flood-Resistant Construction

Chapter 4 – Foundations

Section R401 – General

R401.3 Drainage – requires positive drainage away from foundation to a public drainage structure.

R403.1.4 Minimum Depth of Footings- based on frost depth (24” in Jefferson County)

Table R403.1.4 Minimum Frost Protection Depth for KY

Table R403.3 Minimum Insulation Requirements for Frost-protected Footings in Heated Buildings

Figure R403.3(1) Insulation Placement for Frost-protected Footings in Heated Buildings

Figure R403.3(2) Air-Freezing Index

Section R405 Foundation Drainage

Section R406 Foundation Waterproofing and Dampproofing

Section R408 Under Floor Space

R408.6 Flood Resistance – Flood openings required

Chapter 5 – Floors

Table R502.5(1) Girder Spans and Header Spans –based on snow load

Table R505.3.1(1) Floor to Foundation or Bearing Wall Connection Requirements – based on seismic, wind speed and exposure.

Chapter 6 – Wall Construction

Table R602.3.1 Maximum Allowable Length of Wood Wall Studs – based on wind speed and seismic zone.

Table R602.10.1 Wall Bracing – based on seismic zone and wind speed.

Section R603 Steel Wall Framing

Table R603.3.1 Wall to Foundation or Floor Connection Requirements (Steel walls) – based on seismic and wind speed.

Tables R603.3.2(2) thru (13) Cold-Formed Steel Stud Thickness for various wall heights and steel strength – based on snow load.

Table R603.6(1) thru (3) Allowable Header Spans – based on snow load.

Table R603.6(5) Header to King Stud Connection Requirements – based on seismic zone, wind speed and exposure.

Table R603.7 Minimum Percentage of Full Height Structural Sheathing on Exterior Walls – based on wind speed and exposure.

R603.8.3 High Wind Requirements (includes several figures and tables).

Section R606 General Masonry Construction

R606.11 Seismic Requirements

Table R606.10(1) Anchorage Requirements for Masonry Walls in Seismic Design Category A, B or C and Wind Loads < 30 psf.

Section R610 Glass Unit Masonry

Figure R610.4.1 Glass Unit Masonry Design Wind Load Resistance

Section R611 Insulating Concrete Form (ICF) Wall Construction

Table R611.3 Minimum Vertical Wall Reinforcement for Flat ICF Above-grade Walls – based on wind speed

Table R611.4(1) Minimum Vertical Wall Reinforcement for Waffle-grid ICF Above-grade Walls – based on wind speed.

Table R611.5 Minimum Vertical Wall Reinforcement for Screen-grid ICF Above-grade Walls – based on wind speed.

Tables R611.7(2) thru (5) Maximum Allowable Spans for ICF Lintels – based on snow load.

Table R611.7(8) Minimum Percentage of Solid Wall Length along Exterior Wall Lines – based on wind speed.

Table R611.7(9) Minimum Percentage of Solid Wall Length for Seismic Design Category C

Section R613 Exterior Windows and Glass Doors

R613.4 Windborne Debris Protection – in Hurricane-prone areas

Chapter 7 – Wall Covering

R703.7 Stone and Masonry Veneer – includes seismic design criteria

Chapter 8 – Roof and Ceiling Construction

R802.10 Wood Trusses – Design drawings must show design loads including snow, wind and earthquake zones.

R802.11 Roof Tie Down – to resist wind uplift

Tables R802.5.1(1) thru (8) Rafter Spacing for Common Lumber Species-based on snow loads.

Table R802.5.1(9) Rafter/Ceiling Joist Heel Joint Connections – based on snow loads.

Table 802.11 Required Strength of Truss or Rafter Tie-Down Connections to Resist Wind Uplift Forces

Section R804 Steel Roof Framing

R804.3.3 Allowable Rafter Spans – based on snow and wind loads

R804.3.3.1.1 High Wind Ridge Tension Connections

R804.4 Roof Tie Down

R804.4.1 High Wind Roof Tie Down

Table R804.3.1(3) Number of Screws Required for Ceiling Joist to Rafter Connection – based on snow load.

Table R804.3.3(1) Allowable Horizontal Rafter Spans – based on snow load.

Table R804.3.3(2) Basic Wind Speed to Equivalent Snow Load Conversion

Chapter 9 – Roof Assemblies

R905.2 Asphalt Shingles

R905.2.6 Attachment of Asphalt Shingles – based on wind speed

R905.2.7.1 Ice Protection of Underlayment

R905.2.7.2 Underlayment and High Wind

Section R907 Reroofing

R907.3 Recovery versus Replacement – requires removal of old asphalt shingles prior to replacement in areas subject to severe hail damage.

Figure R907.3 Hail Risk Map – Kentucky is shown in light to moderate risk area.

Chapter 10 – Chimneys and Fireplaces

Section R1001 Masonry Chimneys

R1001.1 General – includes seismic requirements. For Seismic Design Categories A, B or C seismic anchoring and reinforcement are not required.

Section R1003 Masonry Fireplaces

R1003.3 Seismic Reinforcing – for Seismic Des. Cat. D. Not required in Categories A, B or C.

Part VII – Plumbing Systems

P2501.2 Anchorage of Water Heaters in Seismic Design Category D. Not required in Categories A, B or C.

Part X – Appendix

Appendix A – Degree Day and Design Temperature – for Louisville:

Heating Degree Days = 4,660, Design Temperature: for Winter = 10°F, for Summer: Dry bulb = 93°F, Wet bulb = 77°F.